

**APPENDIX P**

**PULTE SUPPLEMENTAL ENVIRONMENTAL PROJECT (SEP)  
GARCIA RIVER FOREST -- SEDIMENT REDUCTION PROJECTS  
MENDOCINO COUNTY, CALIFORNIA**



## APPENDIX P

### **Pulte Supplemental Environmental Project (SEP) GARCIA RIVER FOREST--SEDIMENT REDUCTION PROJECTS Mendocino County, California**

Pulte shall implement two sediment reduction projects ("Sediment Projects") designed to prevent sediment runoff from the Garcia River Forest located in Mendocino County, California. The Sediment Projects will improve water quality in the Garcia River by reducing sediment transport in certain sub-basins, thereby reducing the impact of sediments and other pollutants on sensitive aquatic habitats and enhancing anadromous fish habitat. These Sediment Projects will have a beneficial environmental effect on the Garcia River watershed and the riparian flora and fauna. These Sediment Projects are not otherwise required under applicable law. The Sediment Projects, to be completed over a three year period, are described below.

#### **Methodology for Sediment Projects Selection:**

Pulte, utilizing the expertise of the The Conservation Fund ("TCF" or "Fund"), conducted an investigation to identify areas that might benefit from Sediment Projects.

Based on that investigation, which included a two-day site inspection by Pulte personnel, Pulte focused its efforts on the Garcia River watershed in northern California. The Garcia River watershed comprises over 72,000 acres and contains important steelhead and coho salmon habitat that is in need of restoration. Decades of timber harvesting by previous owners degraded the watershed's water quality and fish habitats through sediment deposits resulting from past forest management activities. At the present time, the Garcia River supports only very limited numbers of salmonids. Many documents have assessed conditions in the Garcia Watershed, including the 1992 Garcia River Watershed Enhancement Plan (GRWEP), the 1997 Coastal Forestlands Sustained Yield Plan (CFLSYP), and the 2001 CA Regional Water Quality Control Board TMDL Action Plan, in an effort to identify ways to restore the fisheries resource. These studies have shown that in the Garcia Watershed, as in many similar north-coast streams, excessive sediment, generated from land-use related erosion and down slope movement of surface material, has resulted in the reduction and degradation of available salmonid habitat.

The California Department of Fish and Game's Recovery Strategy for California Coho Salmon found that past forestry practices have negatively impacted water quality and coho salmon habitat through increased sedimentation, changes in water temperature, weakening of bank structures, and other factors. A watershed assessment of the Garcia River Forest<sup>1</sup> resulted

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<sup>1</sup> Jack Monschke Watershed Management, "Garcia River Forest Project Overview and Preliminary Action Plan," (February 27, 2005), Appendix B to The Conservation Fund, *Garcia*

in site-specific designs for sediment projects, prioritized by benefit, that include road decommissioning, road upgrading, and instream restoration. Pulte selected two sub-basin watersheds, Blue Waterhole and North Fork, on which to implement these Sediment Projects because they are expected to result in significant reduction in sediment loading to the Garcia River and its tributaries. Pulte shall conduct its restoration Sediment Projects in accordance with the Recovery Strategy for California Coho Salmon and the California Salmonid Stream Habitat Restoration Manual. Reducing sediment contributions from upland areas will improve salmonid spawning habitat by reducing the fine sediment fraction in spawning gravels. Salmonid rearing habitat will be improved through reduced pool filling by coarse and fine sediment. Salmonid populations will also benefit from a reduction in turbidity caused by chronic fine sediment delivery from hydrologically connected road surfaces and inboard ditches.

### **Common Elements of Sediment Projects to be Completed:**

Each Sediment Project described below shall include some or all of the following categories of work, depending on the existing state of the target area. The specific work to be done at each Project will be described in the Site Assessment and will be set forth in the Final SEP Planning Report which will include the Final SEP Project Designs.

1) Road Treatment. Road treatment will reduce current and potential sediment delivery by “storm-proofing” the road system. This includes work to re-shape the running surface of the road to provide moderate outslowing, dispersing runoff into the forested buffer. In addition, fill will be placed inside ditches, and ditch relief culverts will be removed to prevent concentration of runoff. Stream crossings will be sized for 100-year storm events and aligned with the stream grade. Stream crossings will be armored at inflow and outflow locations to prevent scour and undermining. Where necessary, native vegetation will be utilized and streams will be disconnected from the road system through rolling dips 10-30 feet away from the crossing and a critical dip above the crossing so that, should the crossing become plugged or otherwise unable to handle streamflow, the overflow will not be diverted onto the road system. In areas of heavy traffic or areas close to a Class I stream (perennial and fish-bearing), road surfaces will be armored, typically through gravel, to avoid any displacement of the road surface material.

2) Road Decommissioning. Road segments will be decommissioned if they are determined to be unnecessary for management activities and/or emergency/fire access or they pose an unacceptable risk of sediment delivery. Typically these road segments are legacy dead-end roads that are within Watercourse and Lake Protection Zones<sup>2</sup> or

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*River Forest Integrated Resource Management Plan*, at 145-166 (August, 2006), available at [http://conserveonline.org/workspaces/Sustainable\\_Forestry/Management\\_Plans/garcia\\_management\\_plans](http://conserveonline.org/workspaces/Sustainable_Forestry/Management_Plans/garcia_management_plans).

<sup>2</sup> For descriptions of these areas, see, *The Conservation Fund, Garcia River Forest Integrated Resource Management Plan*, (August, 2006), available at [http://conservonline.org/workspaces/Sustainable\\_Forestry/Management\\_Plans/garcia\\_management\\_plans](http://conservonline.org/workspaces/Sustainable_Forestry/Management_Plans/garcia_management_plans).

mid-slope roads that cross unstable surfaces such as historic landslides or headwall swales. The steps involved in road decommissioning include: removal of all structures, such as culverts and bridges; excavation of road approach and abutment material back to the stream's original natural grade and width; checking for competent material in the channel and banks; grading the banks back to a stable slope; mulching exposed soil and re-introducing native vegetation; treating unstable areas by excavating fill and stabilizing exposed surfaces through armor and native vegetation; outsloping road segments between crossings; and, installing cross drains.

3) Instream Restoration. Restoration includes the removal of sediment stored in the stream from past road failures and/or restoration of the natural stream path and complexity, where they have been changed because of road-induced flooding, road-triggered slope failures, or removal of logs or riparian vegetation.

4) Restoration of Canopy. Native riparian trees, primarily willow, alder, and redwood, will be re-introduced and future harvesting will be restricted in riparian areas.

5) Restoration of native vegetation. Where needed, soil will be prepared for recolonization by native annuals, shrubs, and woody vegetation.

#### **Sediment Projects Descriptions and Budgets:**

The Sediment Projects listed below shall be conducted in accordance with the Garcia River Forest's Integrated Resource Management Plan<sup>3</sup>, and road treatment and decommissioning shall be performed in a manner that is consistent with the principles and guidelines as set forth in the "Handbook for Forest and Ranch Roads: A guide for planning, designing, constructing, reconstructing, maintaining, and closing wildland roads" prepared by Pacific Watershed Associates for the Mendocino County Resource Conservation District and available online at: [http://www.dnr.wa.gov/sflo/publications/forest\\_ranch\\_roads.pdf](http://www.dnr.wa.gov/sflo/publications/forest_ranch_roads.pdf).

**Blue Waterhole Creek Sediment Control Sediment Project:** Blue Waterhole Creek is a high-priority restoration area because it contains very good natural pool structures (desired by anadromous fish) but frequently has very high water temperatures (lethal to young coho salmon). Pulte shall reduce the sediment sources and sediment loading and add to the riparian canopy which will decrease summer stream temperatures and increase the habitat quality for coho salmon in this watershed and the Garcia River mainstem.

This Sediment Project shall include:

- Reducing sediment runoff associated with approximately 17 miles of roads on 1664 acres of land.
- Adding to the riparian canopy.

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<sup>3</sup> *Id.*

Expected Sediment Project benefits:

- Prevention of approximately 7,800 cubic yards of road-related sediment delivery.
- Decrease in water temperatures needed to provide suitable habitat for coho salmon.

**Estimated Cost: \$190,000**

**Completion Date: June 30, 2011**

**North Fork Sediment Project:** The North Fork of the Garcia River is the largest sub-watershed on the property; it has excellent habitat for anadromous fish, and has benefited from prior small stream restoration and road upgrade projects. The Sediment Project is designed to address portions of the North Fork that are negatively impacted by stored and road-related sediments that, left untreated, will continue to degrade water quality.

This Sediment Project shall include:

- Treating all known sediment delivery sites. Pulte shall implement this Sediment Project in two phases. Phase I of the Sediment Project shall focus on the upper half of the watershed and Phase II shall focus on the lower half of the watershed, in particular the Olsen Gulch and Fishing Resort Creek drainages.
- Treating an estimated 13,475 cubic yards of stored and road-related delivery sediment.
- Upgrading all the permanent and seasonal roads and stream crossings within this sub-watershed.

Expected Sediment Project benefits:

- Decreasing sediment loading and runoff.
- Improving anadromous fish habitat.

**Estimated Cost: \$418,000**

**Completion Date: June 30, 2011**

### **Sediment Projects Management and Oversight:**

Pulte shall be responsible for implementation of the Sediment Projects. Pulte may utilize technical, engineering and construction services from TCF for implementation of the SEP Sediment Projects. Pulte has determined that TCF has extensive experience and expertise in the areas necessary for completion of these Sediment Projects, and owns the property in the Garcia River Forest that will be the subject of this work. The Fund's ownership and involvement also means that this work will result in the improvement of areas that will remain under the Fund's ownership and protection. Pulte shall hold progress review meetings or teleconferences with TCF staff twice per month and review site work photography and progress reports provided by TCF and its subcontracted consultant(s). Pulte shall make progress payments as work is completed to Pulte's satisfaction. Pulte shall conduct on-site inspections of work by Pulte technical and/or compliance personnel at least once per quarter, during which a Pulte representative shall tour the work sites with TCF staff to review progress in the field.

## SEP Schedule

### I. REPORTS

First SEP Planning Report	15 days after the end of the first full six month period following the Date of Entry
Final SEP Planning Report	15 days after the end of the second full six month period following the Date of Entry
Quarterly SEP Progress Reports	15 days after the end of each full three month period following the Final SEP Planning Report
SEP Completion Report	15 days after completion of all work required under the SEP

### II. MILESTONES

Completion of Site Assessment and Final Sediment Project Designs	12 months following the Date of Entry
Completion of Work on the Blue Waterhole Creek Sediment Project	June 30, 2011
Completion of Work on North Fork Garcia River Sediment Project	June 30, 2011